

ABSTRACT

A process for reducing the incidence of a secondary reaction zone (SRZ) in alloys prone to SRZ formation, particularly superalloys that have a high refractory element content. The process finds use with articles having a wall region that defines external and internal surfaces on the exterior and within the article, respectively. Diffusion coatings are formed on the internal and external surfaces of the article, with at least the diffusion coating on the external surface comprising an additive layer and a diffusion zone that is beneath the additive layer and extends into the wall region. The additive layer and at least a portion of the diffusion zone of the external diffusion coating is then removed to define an exposed surface region on the exterior of the article. An overlay coating is then deposited on the exposed surface region.